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ABSTRACT

This research, begun in Fall 1991, explored the learning-to-learn strategies of adult students taking computer conferencing courses for college credit. It investigated how these students define effective learning and how they direct their own learning and lifestyles to meet the unique demands of this medium. This research gathered data through unstructured interviews and participant observations, selecting participants through purposeful sampling. It used symbolic interaction as the theoretical approach for data reporting and interpretation. This study not only revealed important aspects of adult learning in the distance education experience and shows effective learning strategies these students employ, but has practical application for instructing learning-how-to-learn with computer conferencing. Discussions of the findings cover (1) making learning effective, i.e., achieving learning success and using one's learning style; (2) general learning approaches, including study patterns, working with others, and personal approaches to learning; (3) online strategies, including overcoming the technological hurdle, processing online information, and dealing with online characteristics; and (4) using off-line resources. Related literature on learning how to learn and computer conferencing is briefly reviewed, and discussions of the conclusions, implications, and significance of the study conclude the report. (Contains 15 references.) (Author/ALF)

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Learning Approaches of Adult Students Taking Computer Conferencing Courses

paper by

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Learning Approaches of Adult Students Taking Computer Conferencing Courses*

ABSTRACT

This research explored the learning-to-learn strategies of adult students taking computer conferencing courses for college credit. It investigated how these students define effective learning and how they direct their own learning and lifestyles to meet the unique demands of this medium. This research gathered data through unstructured interviews and participant observations, selecting participants through purposeful sampling. It used symbolic interaction as the theoretical approach for data reporting and interpretation. This study not only revealed important aspects of adult learning in the distance education experience and shows effective learning strategies these students employ, but have practical application for instructing learning-how-to-learn with computer conferencing. The researcher began his study in Fall 1991 and is involved in data analysis of this dissertation study at NERC Conference time, October 28-30, 1992.

INTRODUCTION

Scholars have recognized the unique advantages computer conferencing holds for collaborative, reflective, experiential, and self-directed learning, (Harasim, 1990); as well as the unique challenges it presents learners. (Davie, 1989) It is also viewed as an inexpensive instructional delivery system which can be readily accessed by adult students from their home or offices (Florini, 1990). For these reasons a score of institutions have launched distance education courses, taught primarily through this medium, and the number grows.

Elsewhere I've given a succinct explanation of the computer conferencing environment which applies equally well for describing the delivery system studied in this research:

> "Computer conferencing" . . . indicate[s] distance education courses where instructors and students carry on on-line discussions made possible by special software operating on a mainframe computer to which they connect by terminal or personal computer and modem.
>
> Computer conferences are similar to email discussions; participants send notes to individuals or groups at any time, day or night. However, unlike email, computer conferences structure communication around topics which become a common resource for later reference, manipulation, and further discussion. So,

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* Researcher: Daniel V. Eastmond, Adult Education Program, Syracuse University

> besides the multiple conversations about course subject matter, computer conferences often have an area where participants can introduce themselves, another area where they can discuss the technology and their experience as a distant learner, another where they evaluate the course and still another where they can chat about current events or whatever is on their mind. And, these can all be going on at the same time! Conferences also accommodate small group project work. (Eastmond, 1992, p. 24)

Although the learning-how-to-learn (LHTL) literature argues the importance of LHTL skills for successful learning (Smith, 1982; Gibbons; 1990; Candy, 1990), most of this scholarship deals with effective learning strategies in conventional situations (Collett, 1990; Smith, 1988) and is of limited value in the computer conferencing setting.

This research found that adult students who have successful computer conferencing experiences create their own learning strategies because of their will to make this medium work for them. These strategies may include: 1) learning to use the technology until it becomes useful to them and they've resolved major difficulties which surround it; 2) fitting the course into busy lifestyles of work, family, and community commitments; 3) determining to be involved in the discussion with enough frequency for interactivity and heightened learning; 4) determining to effectively use off-line materials; 5) developing strategies for processing the volume of information they encounter; 6) discovering ways to participate in multiple conversations simultaneously, and 6) setting personal goals and objectives to make the course content meet their particular needs and interests.

PURPOSE

The purpose of this research is to discover how adult students go about making college distance courses taught through computer conferencing successful for them. Ancillary questions are: 1) how do they define effective learning experiences? 2) what strategies have they developed to make on-line learning successful? 3) how are these strategies different from the way they would organize themselves for classroom or other mediated distance education courses? 4) how do the strategies, goals, and attitudes toward learning differ between those students who have successful computer conferencing experiences and those who don't?

METHODOLOGY

Approach

"An emerging discipline, distance education will grow only to the extent that its research base incorporates divergent and competitive methodologies from a number of disciplines." (Minnis, 1985, p. 197) The methodologies this author indicates are the

qualitative approaches of ethnography, case study, and grounded theory as they have been successfully used in anthropology, sociology, and other areas of education.

For this study I applied the qualitative research approach outlined in Bogdan & Biklen (1982) and taught in the three courses I took on this research methodology. This approach entails the writing and analysis of detailed field notes which are developed from reflective memoranda, participant observations and unstructured interviews with people engaged in the activity being studied (in this case, computer conferencing). But, data are not limited to these sources alone; the qualitative researcher may also study official documents, photographs, descriptive statistics, survey data, and any other related records.

The qualitative researcher pursues the study in a reflective manner, analyzing and gathering data throughout the project which promotes the emergence of new themes, perspectives, and foci.

Subjects

My primary subjects were nine adult students involved in a distance education course on the Constitution, taught at Hawks State College* during Fall 1991, with additional data taken from nine other students at the College during the Summer of 1992. Additionally, I interviewed a small number of instructional personnel associated with the conference -- moderators, mentors, technical support people, and administrators for their distinct perspectives. In total, I conducted 38 research sessions (either observations or interviews), holding follow-up interviews with several of the students.

Qualitative researchers usually choose their subjects through purposeful and snowball sampling techniques rather than through random sampling. However, I was fortunate to be able to interview every student who agreed to participate in my study, focusing my attention in follow-up sessions upon those subjects who provided the richest initial interview or following theoretical sampling techniques. (Glaser & Strauss, 1967)

Data Collection

The major data collection technique I used was the unstructured interview, both conducted in-person and over the telephone. Additionally, I observed students in their homes or workplaces participating in the computer conference aspect of the course. I have kept detailed field notes of all these research sessions. To these field notes I added memoranda -- reflections upon my own perspectives about this experience. Finally, I

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* Hawks State College is a fictitious name I've given to the university located in the Northeastern United States which offered these courses and whose students I studied.

gathered official documents from Hawks College's Distance Education Center to add to my data.

Data Analysis

Since analysis is an on-going activity in the qualitative research paradigm, I began preliminary analysis while yet in the field, developing and applying coding categories, as outlined in Bogdan & Biklen (1982) to the field notes I had already collected. I have been using the computer-assisted qualitative analysis program, HyperQual, to assist me in the analysis and writing process, experimenting with some of the data relationships that become more apparent using this type of software. I have also built matrices by coding category and person which help in succinctly summarizing the data I've collected. I am currently analyzing these data using the grounded theory approach outlined in Glaser & Strauss (1967) and summarized in Bogdan & Biklen (1982).

Data Reporting

This paper and research presentation at NERC report preliminary findings of just one area of this doctoral dissertation study in adult education. The "learning approaches" theme is one of the major areas that I have looked at. This paper was written from preliminary analysis of the first half of my field notes. I will more fully examine my complete field notes and related literature as I write this chapter and others of my dissertation. I hope to publish the dissertation or chapters of it in book or journal form upon completion.

Perspective

The researcher's own framework about research -- the issues that deserve studying, views about the way theory is derived, its meaningfulness to the discipline's knowledge base, its furtherance of understanding the human condition, and its applicability to practice -- all set the stage for any research inquiry. Although my approach has evolved during this study and learning about qualitative research, the position I feel most comfortable with is symbolic interaction, with elements of feminist, ethnographic, and grounded theory, too. Symbolic interaction was best presented by Herbert Blumer (1969).

By this view I hold that meaning resides in the shared interactions among individuals and groups about objects in their world; the primary purpose of research is to describe these meanings to the outside arena. I enjoin efforts to develop overarching concepts which describe these relationships theoretically and parsimoniously, without losing the significance, meaningfulness, and humanness found in rich ethnographic description. I'm committed to reflecting about myself, entering my own feelings and

perceptions into the research equation, and using my own experience as a means to enhance my research -- themes I find from feminist methodology. Finally, I feel no need or desire to reify my approach and I feel there is no need that I do so, as a qualitative researcher.

Completion Plans

I began this fieldwork in September 1991 and have interspersed data gathering and analysis throughout this process. I had completed data collection by the end of August 1992 and am currently analyzing my data and studying related literature. I plan to have drafted my dissertation by December 1992, and defend the study in early 1993.

FINDINGS

> *Craig: So, with these classes, you have a lot of assignments and papers to write. But, they [the instructor] don't talk to you very much. You read instead. Aristotle is your mentor. You've got to think that way. Karl Marx is your mentor or Locke. See, if you think that way. You see the problem with Hawks is that it is easy to get discouraged; you are all alone. So you have to put yourself in the frame of mind that you have many teachers. Once you've got a hold on that, then you start to get some insight into what you are learning. (Craig Brooks, October 1991)*

I was excited to hear this learning approach during one of my first interviews. Later, when I told others about his perspective and I sought for other examples of this among Hawks students, I became disappointed -- this wasn't a shared perspective of all students. In a follow-up interview with Craig* , I was even disappointed to hear him say that he had made it up on his own.

But, now I realize that I initially missed the proverbial "forest for the trees." Craig simply represents a fascinating example of someone who has taken an ambivalent, difficult learning situation and created his own workable approach of dealing with it. This exemplifies Hubert Blumer's (1967) view of the world -- that we are all actors who determine how we will deal with and shape the events of our lives, although constraining conditions (situations) may impinge upon that. We all develop and apply our own learning approach, just as Craig, based on our learning preferences, philosophy, and style, constrained or structured within the instructional milieu, such as a computer conference, within which we find ourselves. That is how we are similar, but the results are often quite different.

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* All student names used in this paper are fictitious -- pseudonyms given to them to preserve their anonymity, a condition upon which they agreed to participate in this research.

In presenting my research findings, I use Craig Brooks, one of my key informants, as an example throughout, contrasting his learning approach with distance learners involved in similar courses offered through computer conferencing. Craig, who just turned 40 years old, works as a security officer at a psychiatric hospital in a nearby city. Married, he has three children and owns a home on a country road on the outskirts of town. While his wife works during the day and the children are in daycare or school, he works at his distance education courses in the study area which dominates the basement of their home. I observed Craig working on the computer conference there one afternoon, but most of our research sessions were held over the phone.

Some of these strategies these students employ are socially worked out or come from guidelines and suggestions they have been given by the instructor. But, more typically, these students borrow from their "bag of learning tricks" the approaches, strategies, and tactics which have worked for them in other situations, both instructional, familial or vocational contexts. And, they experiment with these, accepting, discarding, borrowing, and so forth, until they come up with patterns which fit them. And, it is okay if the result is an eclectic, idiosyncratic approach, since these are all individuals, and don't have as intense social exchange of information and need for consensus, especially about student habits, as adults might in other educational settings.

Making Learning Effective

Dan : You certainly don't need to go very far to start your class right?

Craig: Didn't need to go very far? How's that?

Dan : I mean just going down in your basement.

Craig: Yeah. [He smiles] That's right. Its great isn't it. Its wonderful. [pause] What more could a man ask for? And to be able to put insights in and be guided by a referee. This is a great enjoyment for me.

Craig: I like it better than going out in a canoe racing, really. My brothers and I started out 2 years ago. We trained hard. My brother quit smoking all together, and he's running and he's pretty good. And I veered, I started college. So now my brother enters triathlons and comes in 2nd place to somebody who is very good. This is my triathlon. I've veered away from the canoe racing, but this is just as hard as running 20 miles every day. Reading books - book after book - like this, then putting out a paper the professor will like. That's my triathlon.

<u>Achieving Learning Success</u>

Craig defined a successful learning experience as one in which people are relaxed and human -- free to be themselves. That is one reason he likes the computer

conferencing environment, because he doesn't feel inhibited on-line. Such an experience should encourage creativity and challenge a person's thinking and perspective. One of his chief learning goals was to become an effective communicator, someone who is able to "stack the deck" by using arcane vocabulary, writing well, and presenting persuasive arguments -- that is one reason he participates on various networks. He tried to excel and do well in each course he took -- working many extra hours in fulfilling course requirements he didn't initially expect.

He sought to make this on-line course fit into his own learning activities, too. For example, he developed his own writing improvement project, and when I first interviewed him he was trying to use metaphors extensively in all his written communication, including on-line, for the next month period. During the course, he got into debate with another student over women's issues, and used a paper required for another class he was taking concurrently as an opportunity to further explore issues of comparable worth. On-line he sought to shape the computer conference to match his ideal learning experience by raising debate, interjecting humor, and engaging the other participants in discussion.

A common theme that emerged among these students was their preference to study in areas of interest to themselves. They expressed a desire to really study subjects in-depth, and the frustration of often having to skimp through or protract their education, since this ideal was rarely possible with their multiple responsibilities as adults. Some did have the time, though. They expressed enthusiasm for a school, such as Hawks, which allowed them the convenience of working flexibly and independently on their degrees, some solely at a distance.

They often translated their notions of "good learning experiences" into their educational activities. For instance, Kerry Jones often used role-playing in his computer conference writing and asked other participants to discuss an historical figure they looked up to because of his belief that he learns best by placing himself in other people's shoes. He tried to steer the course toward broad themes and principles, expressing and buttressing his own opinion, and sought to have the other discussants communicate similarly. Several students thrived on having long-range structured plans to reach their degree goals -- to the extent that Dennis Weather wouldn't transfer to a much more conveniently located Hawks unit, in order to avoid switching mentors, or Lyn Vaughn who was lock-step finishing her degree up a whole year sooner than required by her employer. Len Parker quit the course within a few weeks after intense participation; why? He felt the course was being handled too superficially by most of the students and the instructor.

Using One's Learning Style

Craig liked a strong sense of competition while he is learning; he enjoyed the pressure to produce, and tried to achieve excellence in his work. He needed time to reflect upon the academic conversation he read on-line, printing it out for reference, wandering about the room, and smoking a cigarette while he thought about how he would respond. He approached computer-related learning differently, though, believing that it is only by trial and error with occasional referencing of the manual that people can learn to use software applications.

Midway through the course, when he thought he wasn't improving and growing on-line like the rest of the participants, he sought out his mentor who cheered him up. Sensitive to how others feel in the conference discussions (possibly from his own feelings of inadequacy), he sent many of them behind-the-scenes, personal email messages of encouragement. He paid strict heed to whatever feedback he got from the instructor on his assignments to tailor future efforts to meet those expectations.

If I were to typify the learning style of the students who preferred distance education in any way, it would be their strong self-discipline and preference for structure. They felt different from co-workers, friends, and family members in that they could carry out class assignments and tasks by juggling their own time and activities, without the social pressure of a classroom, other students, and the instructor to push them forward. However, they wanted to be given concrete specifics about precisely what needed to be done, what the instructor expected, and when the assignments had to be completed. The students also appreciated feedback, which is one way the instructor communicated the real details of expectations. Several told of their contempt and disappointment when they received credit for a former course they had completed but no feedback on their submitted work, expressing their suspicions that the faculty hadn't even read their assignments. Most seemed to prefer informality and spontaneity on-line -- sometimes diffusing "flaming"* with humor.

Contrast these learning preferences with those who disliked the computer conferencing medium and either dropped their distance course or endured it. Judy Wells said she tends to cram and push tasks to completion, rather than budgeting that effort over a longer time span. She had difficulty feeling a sense of urgency, especially in this first distance education experience. Although she saw the assignments and completion dates, she didn't internalize that need to produce on schedule. Judy wanted immediate feedback on her questions and couldn't tolerate waiting a day or two for an

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* Flaming is common computer communication jargon used to describe those who write searing, vitrol responses and opinions which are caustic and out-of-control.

electronic response; by then she had moved on to other concerns. She desired a close working relationship and plenty of feedback from her instructor, which she didn't get in this experience. Kris Barker simply found the on-line component too time-consuming for her demanding schedule, and discovered that she enjoyed learning by watching videos and taking notes better than through conferencing. Len Parker found the structure oppressive -- he preferred to be engaged elsewhere in on-line network discussion, even if he couldn't get course credit for it. Ted Gardner told me he got behind early in the course and never fully did catch up to where he could meaningfully participate on-line.

General Learning Approaches

Craig: I cheated my "labor policy" course a little bit. I'm going to be done with that soon, like two days, my last paper on labor policy. It [the "constitution" course] took away from that. So what I did on my last paper for David and on my last paper for labor policy, I combined one topic, Discrimination. And I did it on more constitutional law with David, and on my labor policy its like a comparable worth system for women. But they are the same books. You know you get that big pile of books out there for research and... doing it that way made it easier.

Study Patterns

Craig studied during the day. He worked the night shift, and pursuing a degree may have been his way of keeping productively occupied when his free time didn't coincide with the rest of the family. He found he could handle the workload of two classes a semester and was sometimes able to dovetail the assignments of both that way. He seemed able and willing to devote more time to the course than most other students.

He described the typical study period of a day as follows. He gets up about 9:00 and goes down to the basement and gets onto the computer first thing to check his email, the computer conference, and any electronic discussion groups to which he belongs. Then he shifts the computer screen to WordPerfect -- waiting patiently to accept any notes, ideas, outlines, or assignments he will feel like working on. He may have reading to do, yet still he works with the computer on. He rarely takes notes on his textbook reading; to keep moving productively through it he uses a highlighter to "circle stuff," making his books impossible to re-sale later. He interrupts these study sessions several times to go get a cup of tea, and expects to have good days and bad days for pushing out his assignments. He'll do this until just after noon. Then, he will quit, unless he has outstanding work pressing up against deadlines. Until his work starts later that afternoon he will eat lunch, work around the house, or go exercise by canoeing.

Most of these students were taking two classes a semester, since that is a Hawks's expectation. However, their study patterns were often quite different than Craigs. Lyn Vaughn, for example, worked on her studies between 3:00 and 7:00 AM, before she went to her job as comptroller at a university. She might have picked up her studies in the evening, after a late afternoon nap, but often her nights were filled with family activities, the PTA, or leading the Cub Scouts. Kerry Jones did his studies in his office at town hall or on the computer in the adjacent police station, usually from 5:00 to 7:00 PM after work, but sometimes he did it before work or late at night. He logged onto the computer conference every other day. A conscientious studier, he tried to go into depth on class topics, trying to always be prepared. Kris Barker worked regular daytime hours; she did most of her reading and written work on her lunch hour. Early mornings and Saturdays were for "catch up"; occasionally she would take an afternoon off and go to a quiet library to complete her work. She stayed up with the course readings and video viewings during the first several weeks of the course when she was still learning to use the computer conference, persistently working at not falling behind. Dennis Weather skipped over the readings he didn't find very interesting, if he didn't expect to be accountable for them, and chose to take short, intensive courses, one at a time to concentrate fully on them, rather than two concurrent classes.

These students prize d most the flexibility these courses offer them, even if their schedules and study habits were quite different. Those who took predominantly distance courses did so because they could do it on their own time, and from their homes or offices -- avoiding an unnecessary drive to a class location. Those who worked with tutors sometimes managed to double up on their assignments so they only had to travel to the educational facility to go over their work, half as much. Some students complained that computer conferencing forced them to stay on top of their assignments in more of a "lock step" fashion than they liked. They were used to dropping their typical correspondence studies for a week or two without penalties when they got overly busy at work or just weren't in the mood.

Working With Others

Craig likes to think of his mentor as a coach, directing him on, more than as a mentor. That relationship is more important that which he has had with other students, but the computer conferencing experience has opened his distance courses to weigh and respond to their opinions too. When he first returned to school, his mentor told him his writing was atrocious, so he took a course to improve it and constantly works at improving it in his other classes. He tries to figure out the instructor's position, political

as well as personal preferences, so he can tailor his assignments accordingly. Sometimes, he goes to his mentor, as he would a counselor, for moral support.

Some other students mentioned their need for structure from their advisors and instructors -- being told just what needs to be done and when it is due. However, they like having control over the process of accomplishing it. Lyn Vaughn, for example, considers herself much more independent and self-disciplined than those she works with, and doesn't feel she particularly needs to work with others (or closely with the professor) to get schoolwork done. Judy Wells told me she constantly watched others trying to seek specific task information on-line, but wasn't that concerned about it herself. Len Parker reluctantly wrote the papers the way the professor wanted them, and then rebelled and dropped the course, believing that he knew as much as the instructor, but was not encouraged to express it. The instructor told me that he originally had no set on-line participation requirement, but the students were constantly bugging him for specific guidelines. So he chose a reasonable number of times to be on weekly and messages to post and was surprised that the issue never came up again; people simply wanted an answer.

Personal Approaches to Learning

Craig told me that he had to put himself in a certain frame of mind to keep studying at home alone, day after day. One way is to imagine that he has multiple teachers, the famous scholars he reads in his courses. He compares what he is doing to a triathlon -- grueling through the papers and assignments as he would the daily practice runs. Several students remarked how they seek to take classes that compliment one another and whose requirements somewhat overlap, thereby cutting down on the work load. Harry Schwartz tries to keep up his enthusiasm for a class after the drudgery has set in, by reminding himself of his initial enthusiasm and remembering what he wanted to get out of it.

On-line Strategies

Dan: When you talk about pressure, do you feel pressure to get in on the conference real quick?

Craig: There is competition here. You want to be good. You know he is grading you on this. And uh, pressure? Yeah, a lot of pressure. Sometimes I feel like standing up, scratching my head, and throwing a book. But that's good. How else can you learn?

Overcoming the Technological Hurdle

One of the first hurdles distance students face when taking a course through computer conferencing is learning the computer telecommunications procedures. Craig hadn't had any difficulty in getting the modem and software working for this course,

even though this was a first experience for him. He had already used a PC and word processor for his other distance courses, so this network activity was mainly an extension of that. When I visited his home, a month after the course started, he was able to quickly move around from one topic to the next, using commands which he had memorized to avoid the time involved in accessing and reading menus. However, Craig's use of the computer wasn't particularly advanced -- with all of the on-line correspondence he had done by February he was just getting around to learning to upload and download files, because he was finding his current information processing habits just too time consuming. He also had not yet learned to skip ahead on various topics to start with just the unread messages. Craig's co-worker friend is also working on a distance degree from Hawks; and uses a similar computer system. They often support each other in learning to use various computer features.

Other students also experienced no difficulty in getting right in and participating on the computer conference, but these were those who had previous, similar background with computers or others around them who could trouble-shoot the snags they ran into. Those who had very strong data processing backgrounds, Miguel Lopez, Betty Omgast, and Rick Turner, would work off-line in reading and preparing responses, but only because they were familiar and comfortable with this process. Quite a few students complained to me of their difficulty in accessing the computer; this was always the case with those who dropped or endured the courses -- Judy Wells, Ted Gardner, or Kris Barker. They never felt comfortable working in the on-line environment and may have gotten behind initially and had trouble staying up. On student, Jack Last, couldn't access a computer from his home or work, so he made arrangements to use the machines at the local Hawks unit, about 30 minutes from his home. He got behind in the on-line reading of notes, and since he had trouble posting messages to the conference, arranged to be able to mail in his responses as letters. Despite these difficulties, Jack was very enthusiastic about his experience when I talked to him at his home.

Processing the On-line Information

How does Craig deal with all the messages he receives in the computer conference? As he reads through the other peoples' responses to discussion items, he uses the "print screen" key to dump them to his printer. While reading their responses on-line, he told me that he often stands up, paces around the room, has a cigarette and thinks about how he will respond. He will avoid reading the other students' responses to conversation until he has down his own reading of the texts and formulated his own position because he doesn't want to be swayed too early by their perspective. After the

work of the course and deadlines set in, he stopped reading and contributing to the optional, off-topic, "pub" item. Once he has read through the discussion on an item, he will sign off of the computer system and read through all of the notes again that he printed out, deciding to which of them he will respond.

Several other students processed the on-line discussion similarly to Craig. Dennis Weather printed out the discussion in the morning before work and then read them over in the evening. He organized the discussion in a notebook at home. Kris Barker did similarly. However, roughly two thirds of the participants never printed out the messages or read them again. Lyn and Jack told me that they would not read all that a discussant had written, if it went over a screen or two, since they felt the person was long-winded and wasting their time.

Craig's strategies for preparing contributions to the conference were more elaborate. He composed all of his responses in Word Perfect, edited and spell checked them, and then printed them out. Then he signed onto the conference and located himself where he wanted to post his note. He then retyped in the whole message since he had not learned to upload files or cut and paste them into the mainframe from his word processing package. When he composed his note, he tried to make it fairly generic to cover the issues and fit in anywhere in the discussion sequence. Before he typed it in though, he read the note immediately preceding his own and tailored the first sentence or two of his own note to address their issues (composing this on-line).

Craig liked to change and add to the scenario the instructor had set up -- to use his creativity, to add humor, and for conflict. Whenever the conversation got tense, and he thought people were just posturing, he would try to tell a joke, make a witty remark, or say, "Let's have a beer." This lightened the conversation up for him and made it more human; otherwise, he said, "I can hardly stand it!" When his messages seem ignored, he felt that what he said was not that good, but he had come up with several ways to make sure the others responded to him -- such as saying radical things, picking on other people, intentionally creating conflict and debate. For example, near the end of the course, he decided to organize a football team on-line in the "pub," asking other class members to sign up to play various positions. This also kept it interesting for him -- to see how others would react. (One member told me he thought a lot of this was pretty goofy). Sometimes he sent private email notes to other class members to smooth over his public, negative comments. To Kerry Jones he sent a note saying (paraphrase), "Us conservatives need to stay together against all of the liberals I sense are in this class!" Later in the course, possibly from instructor feedback, he would go to great lengths to fill his notes with obscure references and details which he thought were required; some

other people saw them as ludicrously beyond their efforts and the course expectations. He told me that sometimes he would search through related conversation on a network discussion group, trying to find relevant arguments or models he could use in his computer conferencing messages, without letting anyone know from where he had come by the information.

Judy Wells, in contrast, (someone who dropped the class finally because she didn't like this learning environment) felt like she couldn't contribute because the other students were way beyond her academic level. She finally contributed when some others said things that so infuriated her that she couldn't hold back. She posted her comments spontaneously; her writing she felt was a free association of ideas -- she did no editing or composing; she didn't have the time to, nor did she want to go to that bother. Kris, Len and Dennis all composed their comments off-line in a word processor after carefully reading the others' messages. Randy and Harry both wrote directly on the screen, liking the spontaneity much better. Randy felt that simply composing a note on the screen and doing simple editing of it allowed him to rework his thoughts, made them general, and softened his words in a way that he could never do in a "live" classroom.

Kerry Jones was the instructor's choice of the best communicator. Kerry told me he used the instructor's suggestions to keep to one idea and use specific examples in notes of about a screen's length or less. He determined to type in something every time he signed on. Even if not prepared to respond, he would make some comment just to show that he was there and thinking. Before writing he scanned through all of the previous conversation to establish the context of the discussion. Although he found it hard to edit on-line, he still preferred to "shoot from the hip," almost never composing anything off-line. When he was alone in the police station he would talk to himself out loud, working though his arguments, and deciding exactly how he wanted to say things before typing them into the computer. He tried to express his own views and not borrow or cite heavily from the texts or videos, especially not summarizing them. He tries to role-play different people in a scenario because he believes that this is an effective way to learn. He also encouraged others' participation by following up on their notes, especially those who hadn't said a whole lot in the conference.

Dealing With On-line Characteristics

The on-line environment represents a different learning world for adult students -- one in which they determine (within bounds) how frequently they will participate, how they will deal with multiple conversations asynchronously and simultaneously,

how they will handle having too much information to handle, and how they will confront ambiguities of this text-only environment.

Craig realized that the system was sluggish in the late morning when he usually signed on, but this was when he must use it, usually. On his days off, he worked late at night when the computer "really flies." He felt pressure to be on frequently, almost daily, to compete with the others, but later on in the course he dropped back so that he could add more details and statistics to his notes. He experienced information overload more with his joining of several electronic network discussion groups (listserves) than on the conference itself. He found it hard to interact with others when there was so much to read. Craig always wondered if others were composing directly on-line or putting their responses together off-line. He told me he could tell a novice conference communicator by the flaws, typos, and disjointed lines, or if their notes were all in capital letters. He said it was hard to put together responses in this electronic discussion environment -- that he wished this were a lower level course because practice and experimentation were the only ways to learn how to do it, "there is no book out there about it."

Other students observed that the on-line conversation would wax and wane according to the felt presence of the instructor and assignment deadlines, (when it would really fall off). Kerry, usually on every other day, wrote longer messages when he hadn't been on as often; shorter ones when he logged on just the next day. He felt that people decide to participate when they are up on the content and ready to discuss it -- which explained why some didn't sign on as regularly. Kris, who originally planned to do all of her on-line activity on just Saturday morning, found that she had to go on-line at least four times a week to keep up. Lyn, who got on by 7:00 AM before the system got busy, participated more later on in the course to make up for not being on-line too much in the beginning. Dennis Weather, an everyday reader and contributor, felt the conference was inhibited by the infrequency of many others' participation. Randy, one of those, disciplined himself to only log on twice a week, since he found this activity was taking up too much of his time; he allocated just 1 to 1 1/2 hours per session, tops.

Kris found that when she studied other people's responses which she printed off-line, the carefully prepared response she created didn't then fit the conversation which had moved ahead in her absence. She ignored talking in the "pub," but would read it, and felt those who made lengthy comments were wasting her time (but she read through them all anyway). Len liked the computer conference because it kept the notes separate, thereby facilitating having multiple conversations. He liked to play with

textual ambiguity in his writing to see how others would react. Lyn used exclamation marks and capital letters to indicate strong words, and expected others to use similar conventions.

Using Off-line Resources

Dan: So, checking out the books isn't a problem?

Craig: No, in fact I've had up to 30 books here at once. I had to take two loads of them in my Volkswagen just to get them in.

Dan: (laughs) Just for this course?

Craig: Well, just about. Like the death penalty, there may be 5 or 6 cases in the Curlons, and then you grab all of the death penalty books you can find. Once you get them home, though, most of them turn out to be useless. But, the parking at the library is $1 an hour for the first hour and $2.50 thereafter. So, you run in and get all the books that you can and take them home. You can keep them out for four weeks.

Craig considered this course very demanding -- lots of extra reading for the four "term" papers required. He would make trips to a nearby university's library to be able to prepare his responses to the tidbits the instructor threw in. He didn't like the video series that was a required part of the course, so after watching several of the video cassettes, he just read the summaries of them in the textbook. All the students I asked had been reading the textbooks and had been able to get the video series from nearby libraries or through interlibrary loan. Kerry tried not to refer directly to the texts in the on-line discussion, but found them to be important. He felt the computer conference replaced the videos for him, but Kris found the videos to be much more interesting and met her learning style.

RELATED LITERATURE

Learning How To Learn

Fundamental to the self-directedness, reflection, experiential learning, collaboration, discovery and other properties of adult learning, is the notion of learning-how-to-learn (LHTL). Smith defined LHTL as "possessing, or acquiring, the knowledge and skill to learn effectively in whatever learning situation one encounters." (1982, p. 19) and said it encompasses these concepts: "(1) increasing the individual's self-awareness and capacity for self-monitoring and reflection when engaged in educational activity; (2) helping people to become more active learners and to assume an appropriate amount of control of learning-related activity; (3) broadening the individual's repertoire of learning strategies; (4) preparing people to accommodate the requirements of different delivery systems, methods, and subject areas; (5) enhancing learner confidence and motivation; (6) compensating for metacognitive deficiencies . . .;

(7) improving group inquiry and problem-solving skills; (8) helping people to make sound choices among the educational programs and resources available to them; and (9) fostering organizational learning." (1990, p. 4)

Characteristics of LHTL

Gibbons (1990) submitted that LHTL are higher order skills than the content being taught. LHTL are a set of skills to draw more learning from life's experiences and to a greater depth than that which any simple content presentation can achieve. He argued that learning and LHTL are similar and overlapping processes, but learning is an operational function (i.e., to "do learning") whereas LHTL is an executive function (i.e., learning "how to do" something.) "The criteria of appropriate and successful LHTL are generalizability, control, and autonomy." (p. 67). In other words better LHTL skills allow skills to be transferred from one setting to another, give learners more control over an instructional situation, and allow them to exercise autonomy (or self-directedness) in carrying their learnings forward.

Candy (1990) notes these are features of the LHTL concept::

- it denotes a lifelong process
- it refers to a developmental process
- "it involves the acquisition of a repertoire of attitudes, understandings, and skills that allow people to become more effective, flexible, and self-organized learners in a variety of contexts." (p. 34)
- it occurs prior to and concurrently with learning activities
- formal education enhances it through curriculum construction and is an appropriate aim of education
- in its deepest forms it allows people to critically examine knowledge systems.
- has both generic and context-specific aspects
- the meaning of LHTL varies with meaning given to word "learning"

A large body of literature exists on assessment of learning styles, a sub component of LHTL. These self-reporting instruments seek to establish individual's learning orientation based on general questions about environment, structure, modality, philosophy, and so forth. Candy (1990) states their purpose is either for instructors to match instructional delivery with individual styles or for further developing learners' range of strategies. He argues that learning styles aren't generic orientations; rather learners vary their style based on the content they are learning.

Some LHTL efforts are aimed at increasing the quality of learning outcomes. The focus here on LHTL is to develop a "more elaborate and complex conception of learning" (Candy 1990, p. 51) and becoming epistemologically more sophisticated.

People's ideas about learning come from the learning contexts they have been engaged in. Candy (1990) cites research indicating that more successful learners are aware of and can discuss their own learning concepts and approaches. Schools, intent on measuring, testing, and assigning grades, are typically engaged in shallow-level learning, like rote memorization and recall activities. But, such reproductive, surface-level learning severely limits persons in problem-solving and application-demanding settings. People themselves often choose to either reproduce a task shallowly or penetrate deeper into subject mastery. Unfortunately, our school systems reward the former, which it can measure easily with standardized tests, and doesn't the latter. Indeed, most school LHTL programs counsel students to better develop the reproductive, shallower skills, totally ignoring the other, deeper strategies (Candy, 1990).

LHTL scholars note that context is the greatest determinant of which LHTL skills will be employed, and a majority of LHTL skills are context specific (Smith 1990; Gibbons, 1990; Candy, 1990). Learning skills vary significantly from setting to setting, as differences are perceived by students in the tasks they must perform, and what they see as teaching and evaluation in those settings. Smith (1990) identifies various types of contexts: institutional settings, subject matter, personal learning, and culture. Institutions set forth policy and norms which circumscribe what learning can be sought and by whom. "Each [subject matter] has its characteristic modes of analysis and discourse." (p. 16) Art values creativity; economics values analysis; and science values problem-solving. Even models of teaching create the type of learner response a particular subject values. Candy (1990) questions the efficacy of teaching generic LHTL skills devoid of the specific content and problem setting that the learning addresses. The context of personal learning refers to the unique set of individual characteristics which each person brings to the learning situation, such as goals, modality preferences, learning styles, emotions, and repertoire of known LHTL strategies. (Smith, 1990) Finally, the cultural context of language, gender, race, ethnicity, and values affect LHTL strategies, too. (Smith, 1990).

Models and Taxonomies of LHTL Skills

While still admitting the contextual nature of many LHTL strategies, theorists and practitioners alike have attempted to develop comprehensive lists, hierarchies, models and taxonomies of LHTL strategies. Educators, rather than allow people to incidentally "hit or miss" acquire dysfunctional learning strategies and "personal learning myths," often seek an intervention role in the process (Candy, 1990). These

interventions are of two types: 1) aimed at increasing self-management capabilities, or 2) aimed to increase learning outcomes. Some of these schema are presented below.

Gibbons (1990) suggests a model of the various types of learning and presents LHTL strategies for each of them. First in the model, he proposes natural, formal, and personal *kinds* of learning. He advises the following LHTL strategies for formal learning -- the context of a computer conferencing course:

- learn from instruction
- perform assigned learning tasks
- learn from assigned learning tasks
- learning basic learning skills
- generalize from a learning activity

He further divides these *kinds* of learning into three *aspects*: reason, emotion, and action, with their attendant LHTL strategies. For the reason aspect he enjoins LHTL strategies of perceiving, analyzing, proposing, imagining, and reflecting. For emotion he suggests LHTL skills of feeling, clarity, confidence, determination, and intuition. And, for action he proposes LHTL approaches of decision-making, initiative, practice, problem-solving, and influence. Finally, the model posits three learning *domains:* technical, social, and developmental. For each of these he submits essential elements of LHTL, such as focus, mode of inquiry, means, and outcome.

Smith (1990, citing Smith 1988, pp. 82-83) outlined generic competencies learners may possess in three areas: cognitive, personal, and interpersonal. Cognitive competencies include: "organizing and relating new information; retaining and recalling information; transfer skill; thinking convergently, divergently, critically; and understanding the nature of knowledge." Personal competencies include " understanding of self as learner, confidence, persistence, openness, and flexibility; and awareness and sense of purpose in life and career." Interpersonal competencies include: " giving and receiving feedback; contextual analysis; collaborative inquiry; and using human resources." (p. 18)

Perhaps the most comprehensive of these generic LHTL lists was developed in the Alberta Canada Adult Basic Education (ABE) Project. Collett (1990) states that it is often within the workplace or in typical walks of life where these adult students need to apply the LHTL skills, and not in a classroom per se; also, their LHTL skills run the gamut of life situations, so teaching them shouldn't be geared to a specific content area. Educators form ABE programs around objectives that foster competencies of " the ability to care for one's self effectively, to move successfully into regular occupational

preparation programs, or take advantage of further educational opportunities at the high school level"(p. 247-48).

Using five iterative sessions involving ABE educators, ABE graduates, local citizens, and business leaders, the project developed and refined a data bank of over 1000 competencies and skills adults need to function successful in life. One of the seven major categories in this taxonomy was LHTL skills, containing close to 200 items in a three level hierarchy of specificity. The top level contained these items:

- Understand Self as a Learner
- Manage Self as a Learner
- Understand the Learning Environment
- Utilize Various Learning Methods
- Practical Thinking
- Recall and Apply Data to New Situations
- Apply Problem-Solving Techniques to Make Rational and Reasonable Decisions

Collett (1990) argues that the strengths of the taxonomy are its comprehensiveness, its collaborative development by grass roots people and basic education staff, and that it arose out of a search for competencies of daily living first, and as LHTL strategies second. I find its relevance to my study of distance learners is that they, too, like ABE students, are not learning in an institutional setting with its classrooms, seating arrangements and meeting schedules; so the skills in this taxonomy reflect their situation better.

Computer Conferencing - A Different Medium

Computer conferencing, increasingly being used for teaching distance education courses, represents a unique medium with characteristics for increased collaboration and intellectual development (Harasim 1990; 1989). She outlined some of its features, such as the creation of an active, collaborative, and interactive learning environment, which is text-based, fosters many-to-many communication, and is independent of time and place. Harasim claims these demonstrate that this medium is like no other distance education one, nor is it like the classroom to which it is constantly being compared. Other adult learning ideals it appears to foster are experiential learning, reflection, and self-direction. But, it also represents unique challenges to adults who have not encountered the difficulties also associated with this medium, such as accessibility, small window problem, keeping track of the on-line discussion, disjointed transactions, problematic metaphors, procedural decisions, socio-emotional issues, participation, and typing ability (Davie, 1989).

LHTL With Computer Conferencing

The technological changes that now engulf us are of such a kind, speed, and fundamental enough as to have profound effects in all aspects of our lives (Gooler, 1990). He writes that the emergent information technologies, those which integrate computers, telecommunications and video, have changed the learning process by allowing learners to use multiple modalities, interact with the technology, and have greater opportunities to learn cooperatively with others. LHTL in the information age means skills of "(1) locating and accessing information resources, (2) organizing information, (3) self-diagnosis and assessments, and (4) greater skills in collaboration." (p. 322-324). Computer networking facilitates each of these.

Learning-how-to-learn (LHTL) theorists posit that being able to effectively process and use information represents a more important skill set than concentrating instruction on the acquisition of knowledge (Smith, 1982; Gibbons, 1990). But, relatively little of this scholarship deals with study techniques outside of conventional settings. Candy (1990) explains that along with learning content, we constantly form learning strategies and also develop concepts about ourselves as learners. These views can be both enabling and inhibiting. Candy says "when [learners] approach a new learning task, they cast around for some analogous situation from the past to give guidance as to how to approach this new situation." (p. 41).

Despite its uniqueness, students trying out this medium for the first time receive little guidance about how to participate, organize their lives, interact with off-line materials, reflect, express themselves on-line, and use the on-line experience for successful completion of the course and their unique learning objectives. But, those who had successful experiences with computer conferencing courses had to have made these decisions and brought about the necessary changes in their study habits and lifestyles.

There is a need to discover how adult students taking distance education courses create their own LHTL strategies to effectively use this medium. LHTL, central to the computer conferencing experience, gives adult educators unique insights into the LHTL process. Hopefully, my research begins to fill this void.

DISCUSSION

Findings

This research into the learning approaches of adult students taking distance courses through computer conferencing explored various aspects of their experience. It showed some unique and idiosyncratic ways that they defined an effective learning situation, made attempts to achieve learning success, and accomplished their learning

goals and objectives. They employed general learning strategies, such as study patterns, time scheduling, working with others, establishing attitudes, seeking specific tasks and structure, and demonstrating their competence during this instructional experience. These students felt very capable of managing their time and their lifestyles to achieve learning goals, but demanded a great deal of external structure and specificity about learning task requirements.

But, much of their learning approach was unique to the computer conferencing context of this distance education experience. They sought to learn enough about the technology to operate effectively in this situation. They determined an optimum frequency to participate in the "on-line seminar," one that fit both instructional ideals and lifestyle demands. They developed learning strategies for dealing with multiple discussions, information overload, asynchronicity, and textual ambiguities -- unique characteristics of this medium. Also, they developed their own approaches to processing the on-line information and deciding when, what and how to contribute to the on-line discussion.

These distant courses also required these students to access outside resources -- towards which they developed strategies, sometimes going beyond requirements and expectations.

Conclusions

This research project corroborates much of what the LHTL theorists have said -- that although there are generic LHTL skills, much of learning and learning approaches are unique to specific contexts (Candy, 1990). It used specific examples from the computer conference experience of distance students to substantiate this. This study also corroborates the theory that adults personally and idiosyncratically approach a learning endeavor, based on their own set of personal learning characteristics (Smith, 1990). Individuals produce their own LHTL strategies, based on the trial and error transfer of these skills from other settings, and then they create new LHTL strategies within the on-line course to make this context work successfully for them.

This research also corroborates the LHTL scholarship that posits that formal education often promotes the shallower, rote learning and LHTL strategies toward this end (1990). For example, Craig gave up his "writing project" to make the grade -- both from his own and the instructor's version of the story indicate how institutions foster a certain kind of learning and have little tolerance for behavior that falls outside of what they've prescribed. Similarly, Len dropped out of the Constitution course because of its surface orientation -- an example of where the learner makes the choice between mastery and deeper understanding of the subject matter (Candy, 1990).

This research indicates that media represent a whole other context within which learners apply LHTL skills, and, depending upon the students' familiarity with the characteristics of that medium, may play as big or greater role in determining and creating LHTL strategies than content itself does. This study dealt with how learners approach the unique characteristics of computer conferencing -- technical access, asynchronicity, multiple conversations, information overload, interactivity, text-only environment, and so forth. To date, most LHTL models have dealt with generic LHTL strategies which are best applied in conventional classroom situations. This study's contribution is its illumination of what strategies are evoked when adults approach an unfamiliar instructional medium, such as computer conferencing. Certainly, all media create unique conditions within which the learner must cope; these conditions partially dictate LHTL strategies learners actually use and learn in that instructional setting.

Implications

In critically examining the implications of the findings and conclusions I just presented, this question arises: can generic, useful LHTL skills be identified and taught, or are these so idiosyncratic, individual, and context specific that the effort is futile? I believe that the learning approaches that the students I've studied who have had a successful on-line experience can be extracted, and while their generalizability to other media may be minimal, they nonetheless can be useful in enabling other students to successfully deal with on-line course experiences.

Some of these include:

- Planning to be engaged in the computer conference several times a week to stay involved in current discussions and make the medium more interactive and engaging.
- Making at least one contribution (or more) every time they read through the computer conference.
- Reading through all unread messages within a specific branch, taking notes, before responding.
- Seeking to reference other people's comments, synthesize them, and one's own notes within the context of the current discussion.
- Placing notes in appropriate discussion items.
- Using role-playing, analogies, and humor to enhance learning and the on-line atmosphere.
- Finding a comfortable way to process the on-line information and respond, either spontaneously on-line, or by printing out the conversation, reading it off-line,

preparing responses, and uploading those. Recognizing the tradeoffs each approach makes.

- Keeping most communications short, task or topic specific, and clear.
- Keeping an informal and clear writing style that aids on-line communication, which is predisposed to textual ambiguity.

Significance

This study extends our understanding of the LHTL process, especially with interactive distance education technologies, such as computer conferencing. It corroborates many LHTL findings but posits that media as context can have a major impact on the use of LHTL skills and their acquisition. It documents this process and exposes those LHTL skills in a computer conferencing context. The practical ramifications are that by finding out what effective strategies adult learners use with this medium, institutions offering these types of courses can better assist students in learning through the computer conferencing medium.

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